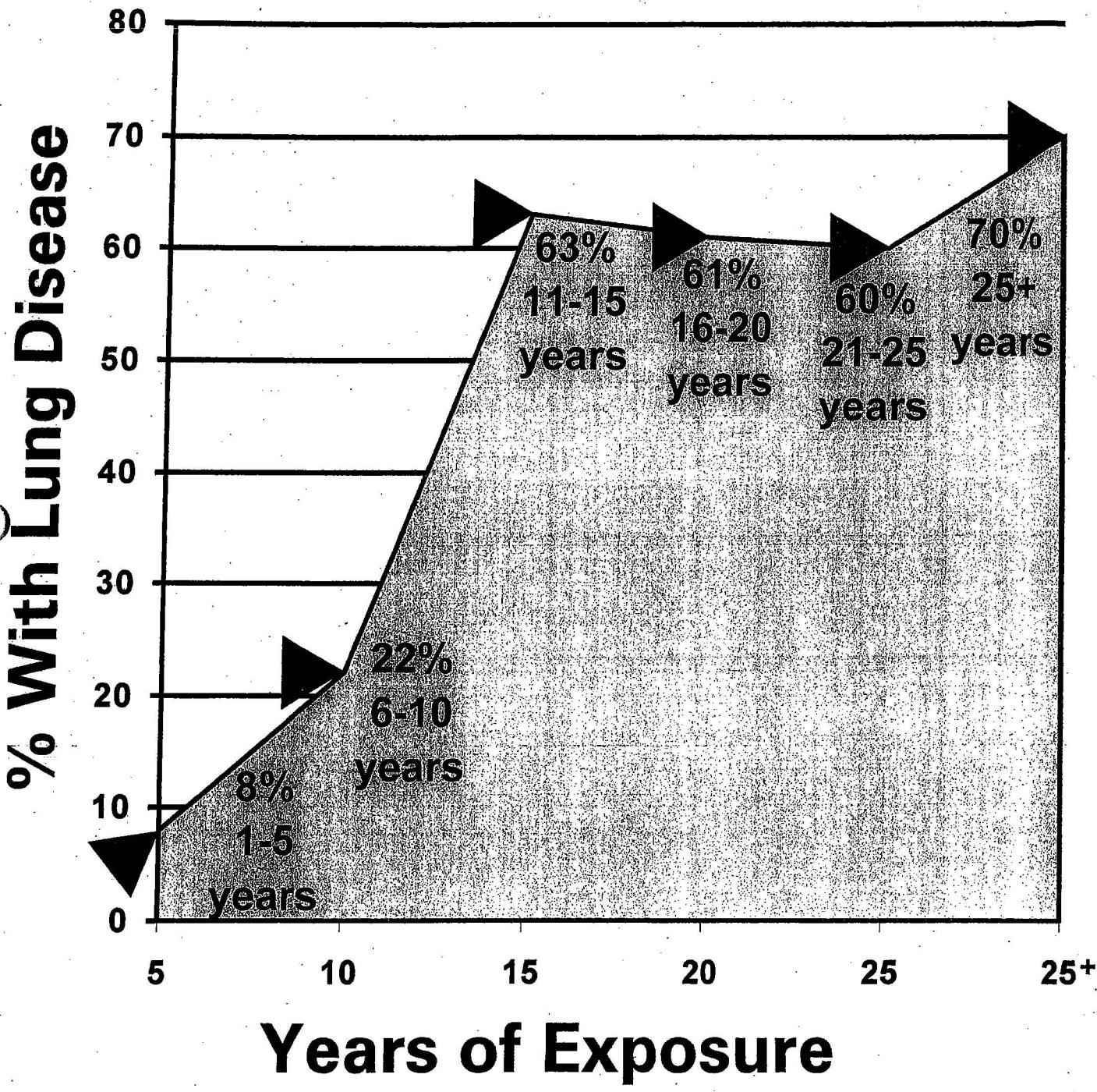
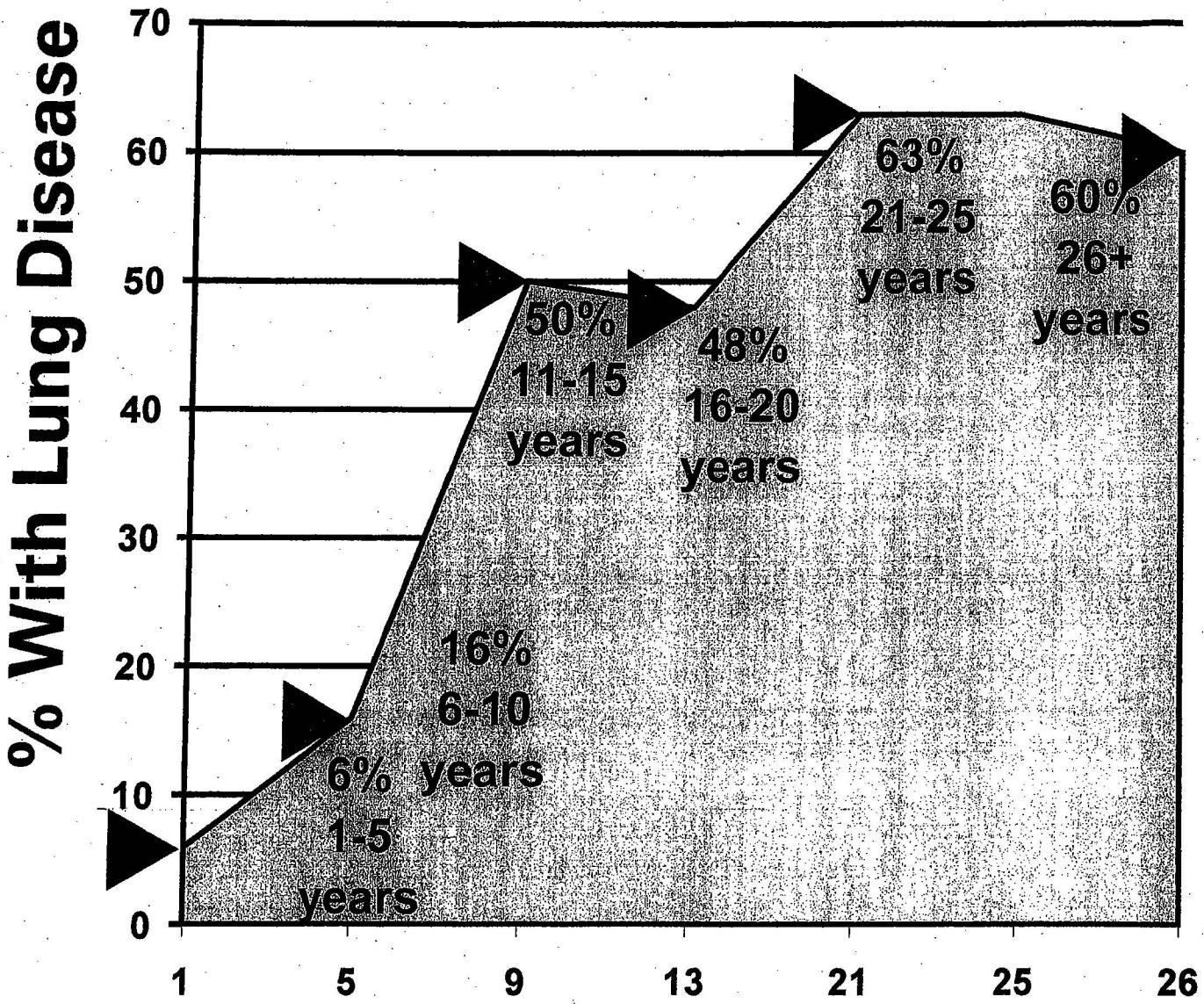


Workers with Disease - 1975



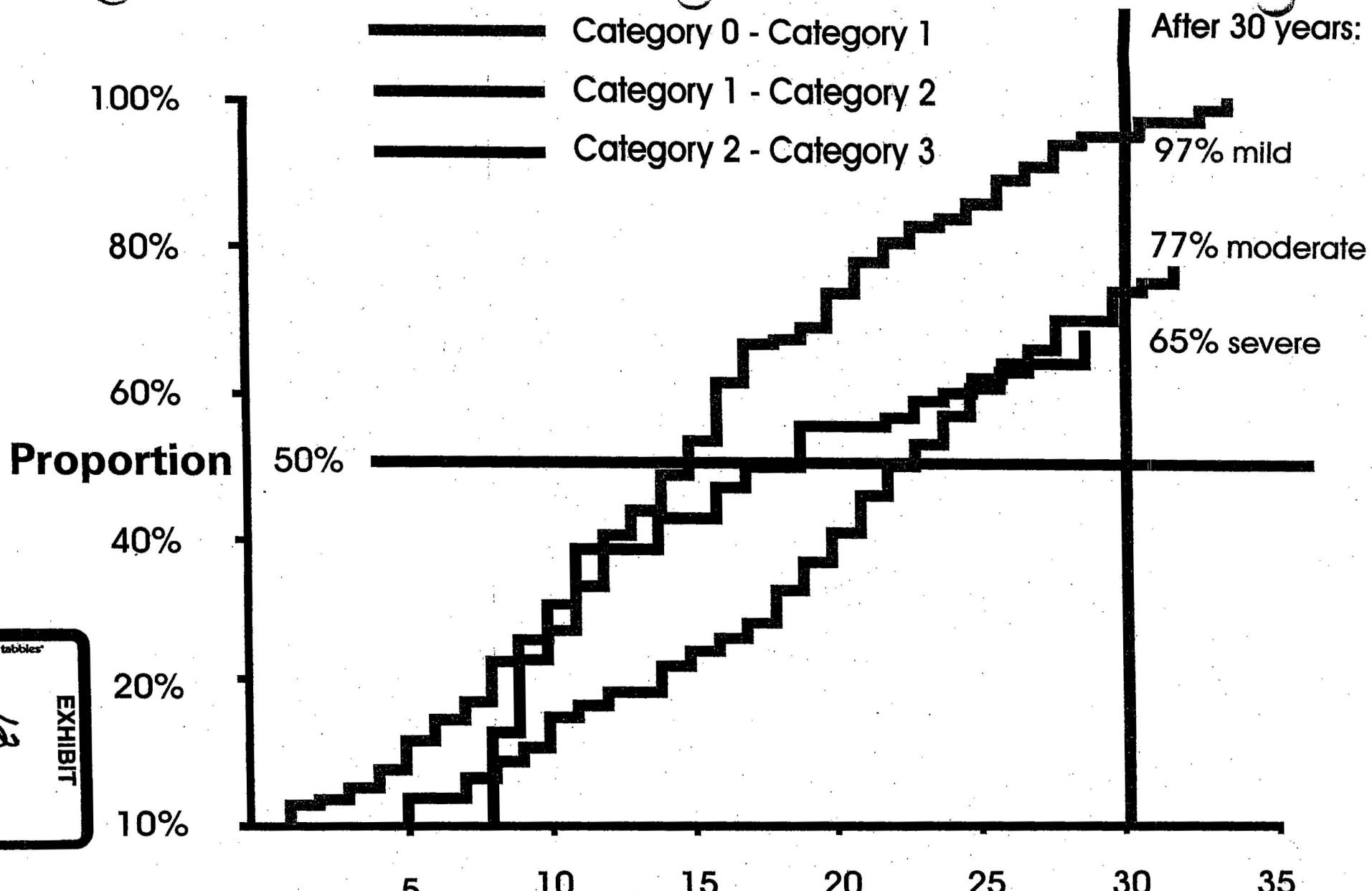
Per Exh. 182.115 Grace Headquarters In-house Study

Workers with Disease - 1976



Years of Exposure

Per Exh. 182.23 Grace Headquarters In-house Study



Cookson (1985) p.996

W-2

STUDIES ON RADIOGRAPHIC PROGRESSION OF ASBESTOS DISEASE

Study (date)	asbestos type	# in study	Avg yrs from 1 st exposure to 1 st study	yrs to follow-up study	% progression on chest x-rays (compare interstitial and pleural)	Maximum years 1 st exposure to last follow-up
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PREDOMINATELY CHRYSOTILE ASBESTOS

Jones (1989)	mainly chrysotile p.97	165 p.101	20 p.104	10 p.98	interstitial: 13% pleural: 23% combined: 31% p.101, Table 5	30 p.104
Gregor (1979)	various jobs p.148	71 p.153	25 p.153	3-7 p.151	interstitial: 18% p.156	25 p.153
Becklake (1979)	chrysotile (all mines) p.23	86 p.26	11 p.26	17 p.26	interstitial: 8/86 = 9% pleural 19/86 = 22% +equivocal: 31% p.26, Table 5	25 p.26

AMPHIBOLE ASBESTOS

Becklake (1979)	chrysotile with tremolite (Thetford) ¹	8 17 p.27	20 10 p.27	16 17 p.27	interstitial: 0% pleural: 64% combined: 64% p.27, Table 6	36 27 p.27
Sluis Cremer (1989)	crocidolite amosite p.846 ²	1454 p.846	7 p.848	avg 8 p.848	interstitial 0/1, then progression = p.849	16 p.851
Cookson (1986)	crocidolite p.994	136 p.995	2 to 34 p.995	up to 34 p.995	interstitial: in 34 yr: to 1/0: 97% to 2/1: 77% to 3/2: 63% p.996, Figure 1	34 p.995
Ehrlich (1992)	amosite p.268	212 p.273	> 20 p.273	Series p.273	interstitial: 67% pleural: 53% p.272-273 ⁴	?

¹See McDonald (1999) p.439 Thetford Mines had 4x more tremolite content than the other mines studied.

²p.846: "once a dose of asbestos sufficient to initiate the disease has been retained, it is inexorably progressive."

³53/88 (60%) + 46/69 (67%) = 99/157 (63%).

⁴Average of reader 1 & reader 2. See Table 5 (parenchymal totals) and Table 8 (pleural > 30).

EXHIBIT

13

WORKERS DEAD FROM ASBESTOS DISEASE

Key to Death Certificates
evaluation by Dr. Whitehouse:

A1 = Asbestosis for sure
 A2 = Probable Asbestosis
 A1,C1 = Asbestosis and Asbestos Lung Cancer
 A1,M = Asbestosis and Mesothelioma
 C1 = Asbestos Lung Cancer for sure
 C2 = Probable Asbestos Lung Cancer
 M = Mesothelioma

* Died of LC within 10 yrs. of 1st exposure - not included in cumulative totals.

† If coded A1,C1 deceased worker will be tallied in Asbestosis Lung Cancer column.

YEAR	NAME	YRS at WRG	DEATH BY ASBESTOS DISEASE			DEATH TOTALS			Total
			Asbestos Lung Cancer	Meso- thelli- oma	Asbes- tosis	Asbestos Lung Cancer	Meso- thelli- oma	Asbes- tosis	
1960	Rudolph Engle	46-60	C1			1			1
1961	William Airth	46-57			A2,A1				
	Glenn Taylor	44-59			A1				
	Charles Wagner	49-59			A2	1		3	4
1963	Raymond Orsborn	48-50	C1						
	Ottis Mast	47-56	C1			3		3	6
1966	John Ludwig	57-66	C1						
	Walter McQueen	44-62			A1	4		4	8
1967	*Merle McComas	58-67	CX						
1968	Raymond Bleich	35-68	C1						
	William Hedrick	57-68			A2	5		5	10
1969	William Shows	47-48	C1						
	Jimmie Starr	52-56	C1			7		5	12
1970	William Smithers	50-52	A1,C1			8		5	13
1971	Orville D. Murray	49-52			A2	8		6	14
1973	Lionel Van Horn	50-73	C1						
	Henry Hammer	48-54			A2	9		7	16